2026 agInnovation Excellence in Multistate Research Award

Purpose

The fundamental mandate of the Multistate Research authority compels State Agricultural Experiment Stations (SAES) to interdependently collaborate in projects that two or more states share as a priority, but for which no one state could address singularly. Demonstration of interdependence is a high standard and has become a hallmark of the Multistate Research Program's management objectives.

The purpose of the agInnovation Excellence in Multistate Research Award program is to annually recognize those station scientists who are conducting exemplary multistate activities and enhance the visibility of the multistate program. A recipient Multistate

Project will be selected from the pool of nominees submitted by the five regional research associations (NCRA, NERA, SAAESD, WAAESD, and ARD), and judged by the agInnovation Science and Technology Committee (STC) to exhibit sustained, meritorious, and exceptional multistate research activities.

Award

The State Agricultural Experiment Station (SAES) Directors have approved a monetary recognition of $15,000 from the Hatch Multistate Research Fund (MRF) for the winner of the Excellence in Multistate Research Award. Up to $5,000 is available to cover travel for members of the recipient project (typically the Administrative Advisor and Chair or their designees) to attend the awards ceremony at the agInnovation Annual Meeting. The remaining $10,000, and any unused travel funds, are available to support activities which enhance and contribute to the research and/or outreach objectives of that multistate project, consistent with the appropriate use of Hatch MRF. Use of these funds is a project committee decision made in conjunction with its Administrative Advisor.

Eligibility

Any current regional Multistate Project (research, ERA, CC) listed in NIMSS (www.nimss.org) is eligible for consideration for an Excellence in Multistate Research Award. **The nomination is predominantly based on the five-year project period, although outcomes and impacts over the course of the project's lifespan may be considered. A nomination that was submitted in previous years should indicate advances made since the previous submission in the transmission correspondence of the nomination packet.**

The Multistate Research authority allows other non-SAES partners to join in these project-based collaborations. Thus, many multistate projects include extension specialists as members, as well as Agricultural Research Service or Forest Service research scientists. In addition, many projects have private sector and non-land-grant participants. Moreover, the majority of multistate projects have participants from more than a single region, with many having representation from all regions such that they are national in scope.

Basis for Nomination

Each of the five regional research associations may nominate one Multistate Project chosen from the entire national portfolio of active projects. An individual project can document collaborative activities with one or

more different multistate projects, if applicable, within the appropriate nomination criteria. Each regional nomination must illustrate how the project addresses at least one of the Grand Challenges outlined at http://escop.info/roadmaptext/ so that relevant success stories may be posted on the agInnovation website.

Nominations shall be made to the Chair of the respective regional Multistate Research Committee (MRC) or Multistate Activities Committee (MAC) via the regional Executive Director's office. The documentation for this type of nomination should be sufficient to allow the review committee members to evaluate the nomination according to the criteria listed below.

Criteria and Evaluation

Successful selections from regional nominations advanced to the national competition for the Excellence in Multistate Research Award will demonstrate high standards of scientific quality, research relevance to a regional or national priority, multistate collaboration on the problem's solution, and professional leadership in the conduct of the project.

All nominated projects, in the required 4-page format, shall be evaluated using the same criteria (with weights shown) based on the Project's:

- Issue, problem or situation in context of Grand Challenge(s) addressed (5%)
- Objectives (5%)
- Accomplishments predominantly based upon the past five-year project period as
    - **Outputs** (the project's products and deliverables, 10%)
    - And qualitative and quantitative descriptions of social, economic, ecological, and(or) environmental benefits related to relevant Grand Challenge(s) as:
        - **Short-term outcomes** (how has the project created awareness, 5%);
        - **Medium-term outcomes** (how has the project changed behavior, 5%);
        - **Long-term outcomes** (how has the project changed condition, 5%);
        - **Impacts** (what are the direct, indirect, and/or anticipated global benefits; how is society and the world better off, 10%)
- Added value and synergistic activities across mission areas:
    - Multi-disciplinary activities (10%)
    - Multi-functional integrated activities (10%)
    - Additional partnerships, associations, or collaborations beyond land-grant universities (e.g., private, for-profit, non-profit, government and non-government agencies;10%)
    - Emphasize what the committee did together that would not have been accomplished with individual work (10%)
- Evidence of multi-institutional and leveraged funding with examples of sources (10%)
- Summary of participating institutions and units (5%)

Selection Process

The STC will serve as the review panel. The review panel will select from the annual group of regional nominees a national winner in time for public announcement and award presentation at the agInnovation Annual Meeting each year. All nominated projects will be evaluated using the same criteria.

Award and Presentation

The national winning project will be recognized by the agInnovation Chair and USDA NIFA Administrator during the Awards Program held at the agInnovation Annual Meeting. Each regional nomination will be included in the APLU Awards Booklet "A Community of Scholars Honoring Excellence" by project number and title, technical committee chair, administrative advisor, and participating institutions. A National Awardee narrative will be created by the MRF Impact Writer and submitted to the STC Executive Vice-Chair. The title of the national winning project will be added to a plaque located at the USDA NIFA Headquarters. Additionally, the national award winner's application will be shared as an example of a successful application when next year's call for nominations is distributed.

Timeline

- November/December – Announcement sent to Directors and Administrators, Administrative Advisors and NIMSS participants by agInnovation Chair
- February 28 – Nominations due at Offices of the Executive Directors
- March – Nominations reviewed by regional Multistate Research or Multistate Activities Committees and recommendations submitted to regional associations
- March/April – Regional associations approve regional nominations at Spring meetings
- April/May - Regional associations review, edit and finalize their nomination prior to the final submission
- May 15 – Associations submit final regional nominations to STC Committee via the regional association supporting STC **(pdf or word document)**
- June –STC Committee reviews regional nominations and selects the national winner
- July – National winner announced in the agenda brief at the agInnovation Executive Committee Meeting held at Joint COPs
- July– STC Executive Vice-chair collects information from regional associations, secures project pictures, and submits materials to APLU for booklet and program script; NIFA notified for USDA NIFA Headquarters plaque inscription
- September – National winner presentation at agInnovation meeting
- November – National award announced at APLU Annual Meeting

Nomination Format

(The nomination should be a very concise summary and **must** be in this format.)

Nominating Region: _____
Nominator: _____ Email: _____
Project or Committee Number and Title: _____
Technical Committee Chair: _____ Email: _____
Administrative Advisor: _____ Email: _____

Project Summary (noting the following):

- Issue, problem or situation in context of Grand Challenge(s) addressed (5%)
- Objectives (5%)
- Accomplishments predominantly based upon the past five-year project period as
    - **Outputs** (the project's products and deliverables, 10%)
    - And qualitative and quantitative descriptions of social, economic, ecological, and(or) environmental benefits related to relevant Grand Challenge(s) as:
        - **Short-term outcomes** (how has the project created awareness, 5%);
        - **Medium-term outcomes** (how has the project changed behavior, 5%);
        - **Long-term outcomes** (how has the project changed condition, 5%);
        - **Impacts** (what are the direct, indirect, and/or anticipated global benefits; how is society and the world better off (10%)
- Added value and synergistic activities across mission areas
    - Multi-disciplinary activities (10%)
    - Multi-functional integrated activities (10%)
    - Additional partnerships, associations, or collaborations beyond land-grant universities (e.g., private, for-profit, non-profit, government and non-government agencies; 10%)
    - Emphasize what the committee did together that would not have been accomplished with individual work (10%)
- Evidence of multi-institutional and leveraged funding with examples of sources (10%)
- Participating institutions and units (5%) (page 4 only)

Nominations should be no more than **3 single-spaced pages** (Times Roman 12 point and one-inch margins) plus a 1-page summary of participating institutions and units (alphabetized) for a **total of 4 pages**. Regions may utilize other information in selecting their nominee. The final regional nomination should be submitted by email to the Offices of the regional Executive Directors, by **c.o.b. February 28.**

Chris Hamilton, North Central christina.hamilton@wisc.edu
David Leibovitz, Northeast david_leibovitz@uri.edu
Cindy Morley, South cmorley@uark.edu
Jennifer Horton, West jennhorton@unr.edu
Lisa Williamson, ARD lmwilliamson1@ncat.edu

2025 Winning Project- For Reference

Nominating Region: Northeast (NE)
Nominator: Robert L. Taylor, Jr. (AA, bob.taylor@mail.wvu.edu)
Project: NE2334 Genetic Bases for Resistance and Immunity to Avian Diseases
Technical Committee Chair: Andrew Broadbent (ajbroad@umd.edu)
Administrative Advisor: Robert L. Taylor Jr. (bob.taylor@mail.wvu.edu)
Issue, problem or situation in context of Grand Challenge(s) addressed: Global poultry consumption has surged since 1960, and in the United States per capita poultry consumption now matches the combined total of beef and pork. As the world prepares to feed a projected 9.7 billion people by 2050, a sustainable and resilient poultry industry is essential. Disease prevention and control are critical to this goal. The multistate project NE2334, Genetic Bases for Resistance and Immunity to Avian Diseases, directly supports this imperative by advancing research, tools, and stakeholder knowledge around the genetic mechanisms of disease resistance and immunity. The project targets major global threats – including avian influenza (AI), Marek's disease (MD) and Newcastle disease – through genetic innovation. NE2334 aligns with three USDA Grand Challenges (GC): GC1 - Sustainability, Competitiveness, and Profitability of Food and Agriculture by minimizing economic losses from disease; GC2 - Adapting to and Mitigating the Impacts of Climate Change by strengthening immune responses in increasingly variable environments; and GC4 - Ensuring a Safe, Secure and Abundant Food Supply by boosting productivity through improved genetic resistance.
Objectives: The NE2334 project, Genetic Bases for Resistance and Immunity to Avian Diseases, pursues three core objectives: 1) Investigate how genetics, epigenetics and gene regulation shape innate and adaptive immune functions; 2) Identify key factors and agents that influence poultry immune development, function, dysfunction, and disease pathology; and 3) Develop and apply genetic stocks, diagnostic tools, reagents and advanced methods to evaluate immune function, track immune system evolution, inform selective breeding, and enhance resistance or protection against avian diseases. While the current phase of NE2334 launched on October 1, 2024, its scientific roots date back to 1968, a remarkable 57-year legacy. Throughout this history, project members have continually adapted to emerging disease threats, integrated cutting-edge technologies, and shared vital insights with stakeholders. Their collective work has led to significant advances – the discovery of key genes, vaccine components, immune system modulators – directly strengthening poultry health and improving industry productivity.
Accomplishments: NE2334 exemplifies the power of cooperative, multidisciplinary research, with over 25% of its publications co-authored by researchers from multiple participating institutions. From 2014 to 2024, project members produced an impressive 429 peer-reviewed journal articles, 32 book chapters, 434 abstracts, and 18 technical reports. An additional 696 peer-reviewed papers were published between 1998 and 2014, bringing the total scholarly output to 1,125 publications. These contributions appear in high-impact and leading journals, including Poultry Science, Avian Diseases, Proceedings of the National Academy of Sciences USA, Nature, Journal of Immunology, Immunogenetics, and Virology. Project members have also authored and edited books on avian immunology and poultry diseases. The project's international reach includes collaborators in Canada, Denmark, Ghana, Kenya, Netherlands, Scotland, and Tanzania. Collectively, NE2334 researchers have made significant strides in reducing the economic toll of avian diseases (GC1), improving immune function under environmental stressors (GC2), and enhancing genetic resistance to protect the global food supply (GC4). Selected achievements:

- High publication rate per scientist, outperforming projects with larger memberships.
- Participants developed and maintained genetic resources, including inbred lines, congenic lines (differing by a single gene or gene family), advanced intercross lines, and highly selected lines - some inbred for 50 to 100 generations. (GC1, GC4)
- In collaboration with industry, members created an immunoglobulin (Ig) knockout chicken line lacking antibody protection, enabling foundational research on immune function.(GC2)
- Discovered and patented SB-1 nonpathogenic Marek's disease (MD) virus. (GC1, GC4)
- Developed genomic tools to identify disease-resistance genes for AI, MD, infectious bronchitis virus (IBV), and infectious bursal disease virus (IBDV). (GC2, GC4)
- Discovered major histocompatibility (B) complex (MHC) gene effects on MD outcomes –landmark findings demonstrating the first genetic resistance to cancer. These two pivotal papers were cited 451 times and 241 times, respectively. (GC1, GC2)
- MHC genes were also shown to influence tumor development from Rous sarcoma virus (RSV) or cloned RSV v-Src oncogene DNA. (GC1, GC2)
- Identified a second family of MHC-like genes, MHC-Y, independent of the MHC that significantly impact disease responses. (GC2, GC4)
- In collaboration with industry, mapped the chromosomal location of specific alloantigen genes and identified their corresponding proteins. (GC1)
- Characterized feed amendments that enhance immune responses. (GC1, GC2)
- Identified genetic markers linked to increased immunity and survival in indigenous African chicken ecotypes challenged with NDV. (GC2, GC4)

Selected Short-term outcomes

- Specific alloantigen genes were found to influence immune responses to Eimeria tenella.
- Genomic tools were successfully used to track beneficial disease-resistance genes in both commercial and research poultry populations against AI. MD, IBV, and IBDV

Selected Medium-term outcomes

- Discovery of MHC-Y genes enabled poultry breeders to select for resistance to pathogens and foodborne bacteria such as Campylobacter.
- Poultry breeders now use project-developed techniques to identify chicken alloantigens and enhance frequencies of favorable alleles for improved production and disease resistance.
- MHC-related research led to identifying resistance alleles for MD, RSV, Salmonella enteriditis, and Eimeria species. MHC-disease association studies for AI are in progress.

Selected Long-term outcomes

- SB-1 MD virus is now a key component of widely used bivalent and trivalent MD vaccines.
- Project-developed genetic stocks, including UCD 001 - used in the landmark 2004 chicken genome sequence (cited 2,067 times) – are widely used by collaborators and researchers to study disease resistance. (GC1)
- Poultry breeders, supported by project scientists, continue to assess MHC and other gene alleles to select for disease resistance and enhanced vaccine responses against AI, MD, IBV and IBDV. (GC1, GC4)

Impacts: Improved disease resistance and prevention strategies developed through NE2334 have led to significant gains in poultry production efficiency, animal health, and welfare. These advances reduce the need

for antibiotics, enhance producer confidence, and contribute to safer poultry products for consumers. The project's identification of critical immune response genes has directly informed vaccine development, leading to more effective disease control. In addition, understanding how heat stress and inflammatory response interaction equips producers with strategies to maintain bird health and productivity amid environmental challenges. Research on host responses to foodborne pathogens, such as Salmonella and Campylobacter, has the potential to significantly lower the risk of contamination in poultry products, further enhancing food safety. The economic impacts of NE2334's work is substantial. The SB-1 Marek's disease vaccine, discovered and patented by project members, is now a core component of virtually all commercial MD vaccination protocols globally. Companies have also integrated genetic screening for disease resistance traits into their breeding programs, directly applying project findings. With total U. S. poultry production value reaching $151.6 billion in 2022, even a conservative estimate of 1% improvement attributed to NE2334 represents $1.5 billion in added value. The global influence of this research is likely even more extensive, reinforcing the importance of sustained investment in avian disease resistance science.

Added Value and Synergistic Activities: NE2334's multidisciplinary and collaborative approach consistently delivers added value; the project's continued identification of genes that enhance immunity and disease resistance equips the poultry industry with tools to address evolving pathogens. This research ensures an adequate, safe, food supply that is sustainable and adaptive to climate changes in accordance with Grand Challenges (GC1, GC2, GC4), integrating science to advance both agricultural production and public well-being.

Multi-functional integrated activities: Project members actively engage in knowledge dissemination through regular presentations at national and international conferences. Many of these are invited presentations, reflecting the team's recognized expertise in poultry genetics and disease resistance. Joint meetings have been held with NC-168 and other multistate project committees. Interactions with industry participants and Extension personnel, both within and outside the annual technical committee meetings, ensure timely communication of new research findings, allowing the industry to integrate the latest science into breeding and production strategies, enhancing NE2334's practical application and relevance.

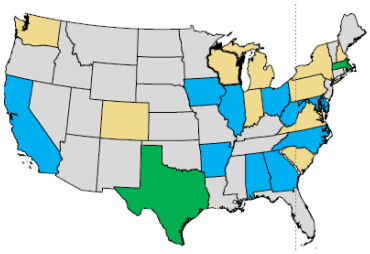
Additional partnerships, associations or collaborations: The committee benefits from robust collaborations with both industry and international partners (see page 4). These relationships contribute significantly to the project's success through sponsorships, graduate fellowships, and critical industry insights. This collaborative framework amplifies the impact of NE2334's work, achieving scientific progress beyond what could be realized through isolated efforts. Notably, over 25% of the project's publications reflect multi-institutional collaboration.

Multi-institutional and Leveraged Funding: Committee members have successfully secured substantial funding from a diverse range of sources to support and expand their research. Notably, the US Agency for International Development awarded $6 million, later renewed with an additional $5 million, for the Feed the Future Innovation Lab to Improve Poultry, focused on enhancing resistance to Newcastle disease virus and heat stress in African poultry. A separate $1 million USDA-AFRI grant supported studies on climate change impacts related to heat stress and immune responses. Additional grants totaling $1.5 million came from other agencies, including a joint USDA and UK Biotechnology and Biological Sciences Research Council initiative to examine the genomics and immunology avian pathogenic E. coli (APEC). Over the project's lifespan, NE2334 researchers have also received support from the National Cancer Institute to investigate genetic susceptibility to RSV-induced tumors, and from the National Science Foundation for evolutionary studies on maternal antibody allocation. Collaborations with industry led to several major breakthroughs, 1) creating immunoglobulin gene knockout

chickens that produce no antibody, a valuable resource for examining immune responses; 2) identifying and locating five chicken alloantigen genes that impact disease resistance and production traits; and 3) funding a competitive graduate student fellowship. These accomplishments are reflected in the strong record of multi-institutional, peer-reviewed publications, demonstrating the power of leveraged, collaborative research to address critical challenges in poultry health and production.

Summary of Participating Institutions and Units:

State (Region) current FTE, function, additional prior FTE - Institution/Institutional Unit Alabama (S), 1 R, (3) - Auburn University
Arkansas (S), 1 R, (2) – University of Arkansas
California (W), 2 R, (4) - University of California-Davis
California (W), 3 R, (0) – Western University
Delaware (NE) – 1 R, (3) - University of Delaware
Georgia (S) – 2 R, (3) - University of Georgia
Georgia (S), 1 R, (3) - USDA-ARS, Athens
Illinois (NC), 1 R, (0) - University of Illinois
Iowa (NC), 1 R, (1) - Iowa State University
Maryland (NE), 2 R, (0) - University of Maryland
North Carolina (S), 2 R, (3) – N. C. State University
Ohio (NC), 1 R (2) - The Ohio State University
West Virginia (NE), 2 R, (0) – West Virginia University
Current Collaborators
Texas – 2 - USDA-ARS, College Station
Massachusetts – Cotter Laboratory, Arlington **Industry Collaborators**: Industry – Cobb-Vantress, Inc. (primary broiler breeder) Industry – Hy-Line International (primary layer breeder) Industry – Perdue Farms, Inc. (primary broiler breeder) Industry – Chrystal Bioscience, Inc. (biotech company) Industry – ImmunBio, Inc. (biotech company) **International Collaborators** (10 institutions, 18 individuals) Canada = Agriculture, Canada; McGill University; University of Prince Edward Island: Ontario Veterinary College; Denmark = University of Aarhus; Ghana = University of Ghana; Kenya = International Livestock Research Institute (ILRI); Netherlands = Wageningen University; Scotland = Roslin Institute, University of Edinburgh; Tanzania = Sokoine University of Agriculture
Former Participating Institutions and collaborators (20 institutions, 30 individuals, 15 states) USDA-ARS, Beltsville, Fayetteville; Beckman Research Institute; Cotter Laboratory; Wistar Institute; University's of Connecticut, Massachusetts, New Hampshire, Pennsylvania, and Wisconsin-Madison; Northern Illinois, Purdue, Framingham State, Colorado State, Cornell, Pennsylvania State, Clemson, Virginia Tech, Texas A&M, and Washington State Universities.



NE2334 has 23 participants from 11 states (blue) across all four U. S. regions. Two states (green) are current collaborators. Prior participating stations are shown in orange. Seventy-three individuals from 49 institutions have participated in all categories.